4.5 CULTURAL RESOURCES

4.5.1 OVERVIEW

INTRODUCTION

The environmental diversity of California, with its ranges of climate, varied topography and geology, and wide array of biological communities, creates an equally diverse cultural landscape, prehistorically and historically. The level of archaeological and historical studies completed in the project area ranges from extensive studies to no formal investigations. Overall, the cultural resource setting includes prehistoric sites that may extend back for several thousand years with some sites showing evidence of contact with early European exploration of California . The historic sites in the project area can reflect the broad cultural panorama of these regions of California. Historic sites can include those associated with early exploration and colonization; the Spanish, Mexican, and American expansions; the Gold Rush; the boom of the 1880s–1890s; post-1900 industrialization; and growth during the World War I, World War II, and post-war eras.

Pre-dating, and in some cases contemporary with, human habitation of the project area, paleontological resources in the form of fossilized remains of organisms that lived in the region in the geologic past are also present in the soil and preserve an additional aspect of prehistory. These resources are also present in the project area.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES

The archaeological record for the project area extends back thousands of years. The overall prehistoric pattern is one of early game hunters followed by more sedentary hunters and gatherers, followed by groups who focused on collecting and lived in large permanent and semi-permanent villages. Historical resources are associated with activities that began with the arrival in California of the first Europeans in the 16th century and extend from that time through to the present day.

The location of known archaeological and historical sites is confidential to prevent scavenging of artifacts. Artifacts are considered non-renewable resources. Detailed information, especially their location, is considered proprietary by State law. Therefore, the following discussion only gives generalities of a topic that could span many volumes of information.

In contrast to prehistoric archaeological sites, the location of historic sites is open to the general public in such registers as the NRHP, the CHL, the California Points of Historic Interest (PHI), and the State Historic Resources Inventory (HRI). On a more local level the City of Los Angeles Historic-Cultural Monuments listing is available in print.

Properties are constantly added to each of these historic registers. The CHL is reprinted periodically, generally every ten years. The HRI is revised at least twice a year. The PHI and the NRHP are also updated constantly.

Table 4.5-1 lists the prehistoric and Native American sites present in the project area that are on the California State Historical Landmarks Register (CHL) and on the National Register of Historic Places (NRHP).

TABLE 4.5-1
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

California State Historical Landmarks Register		
CHL #	**Site Name**	**General Location**
Alameda County		
335	Site of Shell Mound	Emeryville
Orange County		
217	Black Star Canyon Indian Village Site	North of Silverado
Riverside County		
187	Carved Rock	South of Corona
101	Giant Desert Figures	North of Blythe
557	Hemet Maze Stone	Hemet
190	Painted Rock	South of Corona
1005	Santa Rosa Rancho	Murieta
104	Site of Indian Village of Pochea	Hemet
Sacramento County		
900	Nisipowinan Village Site	Sacramento
San Bernardino County		
620	Yucaipa Rancheria	Yucaipa
San Mateo County		
22	Portola Expedition Camp	South of Half Moon Bay
26	Portola Expedition Camp	South of Half Moon Bay
375	Tunitas Beach, Indian Village Site on Portola Route	South of Half Moon Bay

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

National Register of Historic Places		
NRHP #	**Site Name**	**General Location**
Alameda County		
71001109	Ohlone Indian Cemetery	Fremont
Contra Costa County		
78000658	Winehaven (Point Molate; Fuel Dept.; NSCO)	Richmond
Fresno County		
72001601	Winchell Creek Archaeological District	Friant
Imperial County		
84004083	Coyote Valley Site (Site P-15)	Palo Verde
73002252	Fages-De Anza Trail-Southern Emigrant Road	Anza-Borrego
84004063	Hillside Figure (Site G-2)	Palo Verde
84004114	Main Yuha Site	Palo Verde
84004071	North Cargo Muchacho (Site L-3)	Palo Verde
84004111	Ocotillo Wells (Site P-13;322B)	Palo Verde
84004074	Ogilby Site A (Site L-6)	Palo Verde
84004065	Palo Verde Circles and Arrow	Palo Verde
84004079	Pilot Knob 18	Palo Verde
84004075	Pilot Knob Anthropomorphic Figure (M-1)	Palo Verde
84004080	Pilot Knob Anthropomorphic Figure (M-8)	Palo Verde
84004078	Pilot Knob Horse (Site M-4)	Palo Verde
84004076	Pilot Knob Lizard (Site M-2)	Palo Verde
84004077	Pilot Knob Ring (Site M-3)	Palo Verde
84004113	Pinto Wash (Site P-17)	Palo Verde
84004073	Quail, The (Site L-5)	Palo Verde
84004069	Running Man (Site L-1)	Palo Verde
84004082	Singer Element 1-A (Site O-1)	Palo Verde
84004084	Singer Element 1-B (Site O-2)	Palo Verde
84004085	Singer Element 1-C (Site O-3)	Palo Verde
84004086	Singer Element 1-D (Site O-4)	Palo Verde
84004087	Singer Element 1-E (Site O-5)	Palo Verde

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
84004088	Singer Element 1-F (Site O-6)	Palo Verde
84004089	Singer Element 1-G (Site O-7)	Palo Verde
84004090	Singer Element 1-H (Site O-8)	Palo Verde
84004091	Singer Element 1-I (Site O-9)	Palo Verde
84004092	Singer Element 1-J (Site O-10)	Palo Verde
84004093	Singer Element 1-K (Site O-11)	Palo Verde
84004094	Singer Element 1-L (Site O-12)	Palo Verde
84004095	Singer Element 1-M (Site O-13)	Palo Verde
84004096	Singer Element 2-A (Site O-14)	Palo Verde
84004097	Singer Element 2-B (Site O-15)	Palo Verde
84004098	Singer Element 2-C (Site O-16)	Palo Verde
84004099	Singer Element R-1 (Site O-18)	Palo Verde
84004064	Site G-3	Palo Verde
84004070	Site L-2	Palo Verde
84004072	Site L-4	Palo Verde
84004081	Site M-11	Palo Verde
84004027	Site M-9 (AZ-050-0416)	Palo Verde
84004112	Site P-14	Palo Verde
84004106	Site P-8	Palo Verde
99001567	Southwest Lake Cahuilla Recessional Shoreline Archeological District	Salton City
87001026	Stonehead (L-7)	Yuma
84004028	Sweeney Pass Site (Site S-1)	Ocotillo Wells
84004068	Walter's Camp Linear Figure (Site I-1)	Palo Verde
87001025	Winterhaven Anthropomorph (L-8)	Yuma
85003429	Winterhaven Anthropomorph and Bowknot, L-9	Winterhaven
82002185	Yuha Basin Discontiguous District	Plaster City
84004107	Yuha Schneider Site (Site P-9)	Palo Verde
84004110	Yuha Shrine (Site P-12)	Palo Verde

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

84004100	Yuha Site A (Site P-1)	Palo Verde
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
84004101	Yuha Site B (Site P-2)	Palo Verde
84004102	Yuha Site C (Site P-3)	Palo Verde
84004103	Yuha Site E (Site P-4)	Palo Verde
84004104	Yuha Site F (Site P-5)	Palo Verde
84004105	Yuha Site G-1 (Site P-6)	Palo Verde
84004108	Yuha Site H (Site P-10;322E)	Palo Verde
84004109	Yuha Site I (Site P-11;322-G)	Palo Verde
Los Angeles County		
76000492	Humaliwo (Malibu Site LAN-264)	Malibu
74000517	Old Santa Susana Stage Road	Chatsworth
74000521	Puvunga Indian Village Sites	Long Beach
82000429	Puvunga Indian Village Sites (Boundary Increase)	Long Beach
81000153	Rancho Los Alamitos	Long Beach
82004617	Saddle Rock Ranch Pictograph Site	Malibu
90002218	Saddle Rock Ranch Pictograph Site	Malibu
72000228	Vasquez Rocks	Agua Dulce
Marin County		
79000493	China Camp	San Rafael
78000704	Green Brae Brick Yard	Larkspur
71000163	Miller Creek School Indian Mound	San Rafael
81000097	Muir Beach Archaeological Site	Marin City
73000409	Rancho Olompali	Novato
Orange County		
93000300	Christ College Site (CA-ORA-378)	Irvine
72000243	Fairview Indian Site	Costa Mesa
76000505	Jose Serrano Adobe	El Toro
Riverside County		
73000422	Andreas Canyon	Palm Springs

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

84004025	Archaeological Site 4RIV778 (Site E-6)	Blythe
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
72000247	Buttercup Farms Pictograph	Perris
72000247	Coachella Valley Fish Traps	Valerie
98001286	Corn Springs (CA-RIV-32)	Desert Center
84004038	Dancing Shaman Group (Site E-5)	Blythe*
84004054	Hook Figure (Site E-45)	Blythe*
84004037	Little Bird and 1,000 seats (E-4a;E-4b)	Blythe*
82002226	McCoy Spring Archaeological Site	Blythe
84004045	Military Site (Site E-16)	Blythe*
73000424	Murrieta Creek Archaeological Area	Temecula
81000165	North Chuckwalla Mountain Quarry District	Desert Center
81000166	North Chuckwalla Mountains Petroglyph District	Desert Center
84004042	Quien Sabe 111 (Site E-12)	Blythe*
84004039	Quien Sabe Bird—Slaughter Tree Wash Dance Pattern (E-9)	Blythe*
84004035	Site E-1	Blythe*
84004041	Site E-11	Blythe*
84004046	Site E-19	Blythe*
84004047	Site E-20	Blythe*
84004048	Site E-22	Blythe*
84004049	Site E-24	Blythe*
84004036	Site E-3	Blythe*
72000246	Tahquitz Canyon	Palm Springs
Sacramento County		
71001077	Bennet Mound (4-Sac-16)	Sacramento
71000175	Delta Meadows Site (4-Sac-76)	Locke
75000456	Indian Stone Corral	Orangevale
71000177	Joe Mound (4-Sac-31)	Sacramento
78000739	Nisenan Village Site (CA-SAC-99 lower)	Carmichael
71000179	Woodlake Site (4-Sac-39)	Sacramento

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

San Bernardino County		
82002239	Aiken's Wash National Register District	Baker
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
81000170	Archeological Site CA SBR 3186	Silver Lake
85003435	Archeological Site No. D-4	Needles
85003578	Archeological Site No. D-6	Needles
85003430	Archeological Site No. E-21	Parker
84004030	Beale Slough Figures (Site D-9)	Needles
82000981	Bitter Spring Archaeological Site (4-SBr-2659)	Barstow
00001046	Black Canyon--Inscription Canyon--Black Mountain Rock Art District	Hinkley
00001326	Blackwater Well Archeological District	Red Mountains
82002241	CA SBr 1008A, CA SBr 1008B, CA SBr 1008C	Johannesburg
76002306	Cajon Pass Camp Site	San Bernardino
73000430	Calico Mountains Archeological District	Yermo
76000514	Crowder Canyon Archeological District	San Bernardino
80000838	Fontana Pit and Groove Petroglyph Site	Fontana
95000044	Foxtrot Petroglyph Site	Twentynine Palms
78003511	Indian Rock Art Site	Twentynine Palms
84004034	Lake Havasu Site (Site D-10)	Needles
83004699	Newberry Cave Archeological Site (4SBR199)	Barstow
00001325	Newberry Cave Site CA-199	Newberry Springs
84004032	Park Moabi Site (Site D-11)	Needles
73000429	Piute Pass Archeological District	Needles
82002240	Rodman Mountains Petroglyphs Archeological District	Barstow
84004033	Site D-12	Needles

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

84004029	Site D-7	Needles
81000169	Squaw Spring Archeological District	Red Mountain
78000745	Topock Maze Archeological Site	Needles
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
San Diego County		
85003431	Anza Borrego – Palo Verde Site, S-2	Borrego Springs
85003432	Anza Borrego – Sin Nombre, S-4	Borrego Springs
85003433	Anza Borrego – Split Mountain Site, S-3	Borrego Springs
74000547	Bear Valley Archaeological Site	Pine Valley
73002252	Fages-De Anza Trail – Southern Emigrant Road	Borrego Springs
93001520	Harris, C. W., Site Archaeological District	Rancho Santa Fe
92001268	Kuchamaa (Tecate Peak) District	Tecate
93000391	Las Flores Estancia (CA-SDI-812)	Camp Pendleton
76002308	Lower Borrego Valley Archaeological District	Borrego Springs
75000466	Sorrento Valley Site (Rimbach Ranch)	San Diego
83003593	Table Mountain District	Jacumba
San Francisco County		
76000176	Point Lobos Archaeological Sites District	San Francisco
San Mateo County		
78000771	Archaeological Site SMA-151	Princeton
75000479	Bourn-Roth Estate (Filoli)	Woodside
Santa Clara County		
82004985	Circles of Circles Archaeological District	Morgan Hill
71000192	Coyote Creek Archaeological District	Gilroy Hot Springs
72000254	Poverty Flat Site (4SCL-sl)	Morgan Hill

TABLE 4.5-1 (continued)
STATE AND FEDERALLY LISTED PREHISTORIC AND NATIVE AMERICAN RESOURCES IN THE PROJECT COUNTIES

Santa Cruz County		
79000552	Branciforte Adobe	Santa Cruz
81000178	Allan Brown Site (CA-SCR-20)	Santa Cruz
National Register of Historic Places (cont.)		
NRHP #	**Site Name**	**General Location**
76000532	Watsonville-Lee Road Site (CA-SCR-107)	Watsonville

* - Listing with restricted information regarding location, cultural affiliation, period, or function.

The project area was occupied during both the prehistoric and protohistoric periods; therefore archaeological sites are widespread and numerous. Rock outcrops, river and stream drainages, and coastal strips were often prime locations for Native American village sites or processing camps. These locations now range from highly urbanized locations such as cities to undeveloped areas of the high desert. Often archaeological sites are covered by three feet or more of topsoil, thereby protecting the remains even after an area has been fully urbanized.

Prehistoric Period (Prior to 1542)

The Prehistoric cultural history of California throughout the project area can be described in terms developed by archaeologist and culture historian William Wallace (1978). He has characterized the early "Post-Pleistocene" prehistory of California, from approximately 11,000 years ago to 4,000 years ago, in terms of the "food-getting" habits as demonstrated in the artifactual evidence left behind in the archaeological record. On this basis, he defined three periods of distinctive subsistence practices for this approximately 7,000-year span. He termed the periods as: Period I: Hunting (11,000 to 8,000 B.P.), Period II: Food Collecting (8,000 to 5,000 years ago), and Period III: Diversified Subsistence (5,000 to 4,000 years ago). Elsasser (1978) described the time period beginning around 4,000 years ago up to 1,000 years ago as an era in California's prehistory when distinctive regional cultures developed. These regional cultures were an outgrowth of the period of subsistence diversification described by Wallace. Elsasser defined five regions during this period: Central California, the North Coast Ranges, the Sierra Nevada, Northwestern California, and the Southern California Coast, as being distinctive from one another in identifiable cultural traits. From circa 1,500 years ago to circa 300 years ago (the approximate time of European contact and subsequent cultural disruption), is a period characterized as Protohistoric (King 1978), signifying the last period of undisrupted prehistoric cultures in the state. In some areas this period is distinguished by new subsistence technologies such as the bow and arrow as well as by other distinctive traits such as burial by cremation and the introduction of ceramics. The abundance of resources available in California created a great deal of potential for hunter-gatherers, which resulted in population growth and cultural

elaboration. Indeed, Native Californians achieved the highest level of complexity and sociocultural integration without the adoption of agriculture. The material culture that represents this lengthy period of cultural change is of prime interest to archaeologists.

ETHNOGRAPHIC BACKGROUND

The project area as a whole represents a vast area that once was the home to at least 20 distinct Native American groups. As with all California Indians, these groups exhibited a wide variety of economic and political strategies; however, most of the earliest California inhabitants subsisted by hunting and gathering, with coastal groups relying to a significant degree on marine food resources such as fish, shellfish and marine mammals as well as terrestrial resources for shelter and sustenance, while interior groups relied primarily on terrestrial resources for subsistence. These ethnographically defined groups were still occupying the project area during the 18th and 19th centuries when European explorers and early ethnographers took notes.

The territorial boundaries defined by the early ethnographers for Native American groups have fluctuated through time and are often ill defined. Moreover, many tribal boundaries overlapped. The boundaries reflect general areas in which Native American groups resided and should not be considered fixed. Most groups migrated within these general boundaries over time. The following is a discussion of Native American groups that appear to represent the principal groups that have inhabited locations throughout the project area.

Two Penutian derived groups, the Coastanoan (Ohlone) and the Coast Miwok (*Mewuk*) inhabited the San Francisco Bay area at the time of first European contact (circa 1579). The linguistically distinct Coast Miwok inhabited only the peninsula area north of San Francisco at the time of contact. In Contra Costa County, in addition to the Ohlone, the Northern Valley Yokuts and Eastern Miwok inhabited portions of the county. Two other Penutian derived groups the Nisinan (Southern Maidu) and the Eastern Miwok to the south, inhabited most of the Sacramento area prior to, and at the time of first European contact. The Nisenan, together with other adjacent Maidu groups, and the Eastern Miwok form subgroups of the California Penutian linguistic family (Wilson and Towne 1978; Levy 1978:398-413; Kroeber 1925:393). In Fresno County, three other Penutian groups, the Northern Valley Yokuts, Southern Valley Yokuts, and Foothill Yokuts inhabited the northern Central Valley and the eastern Sierra Nevada foothill area of the county (Kroeber 1925; Wallace 1978: 448-470; Spier 1978:471-484).

The six contiguous southern counties within the project area were inhabited ethnographically, principally, by five Native American groups. One group inhabited the Los Angeles Basin, the Shoshonean derived Gabrielino. Orange and western Riverside Counties were also inhabited by Shoshonean derived groups, the JuaneZo and LuiseZo, but a Hokan derived group, the Kumeyaay or DiegueZo inhabited southern San Diego County. Riverside County was inhabited by two other Shoshonean groups, the Cahuilla, and the Chemehueve, and one Hokan group, the Halchidhoma. San Bernardino County was inhabited by the Gabrielino and four other Shoshonean groups, the Serrano, the Kawaiisu, the Southern Paiute, and the Chemehueve; and two Yuman groups, the Halchidhoma and the Mojave. The western portion of Imperial County was inhabited by the

Kumeyaay, while the eastern portion along the Colorado River was inhabited by another Yuman group the Quechan. The Gabrielino, JuaneZo, and LuiseZo also did not have a single term or word in their language by which they referred to themselves. Thus, they came to be known by terms for the Spanish mission with which they eventually became associated; the Gabrielino from the Mission San Gabriel, the JuaneZo from the Mission San Juan Capistrano, and the LuiseZo from the Mission San Luis Rey. The Kumeyaay were also originally known historically by a mission associated term, the DiegueZo for the Mission San Diego, but have more recently been more commonly called by a Native American term "Kumeyaay" (Kroeber, 1925; Bean and Smith, 1978:538-549; Johnson, 1962; Luomala 1978).

During the historic period beginning in the mid-1700s, the natives of the project area suffered at the hands of the Spanish missionaries and settlers. While no missions were established in the immediate Sacramento and Fresno areas, the local people were affected by missions built in San Francisco de Solano (present-day Sonoma), San Rafael, and, San Jose. As the populations of coastal Indians were depleted, the Spaniards turned inland for new sources of converts and labor. The introduction of diseases for which the natives did not have immunity coupled with the rapid changes in cultural patterns forced upon them by the Spaniards led to the death and displacement of thousands of native people. This situation was true for the natives in all of the project areas of California, both north and south, during the Spanish period. Likewise, during the Mexican period (circa 1821), following the Mexican Revolution, land use by Europeans intensified and the natives continued to lose land and power as the Hispanics spread across each of the areas. This was the era of large cattle ranches and the consolidation of power by a relatively small number of Mexican families.

Following the Mexican American War in 1848, California became first a territory of the United States and then a state. The discovery of gold in the Sierra foothills in 1848 led to an immense influx of Americans and other gold seekers. With as many as 10,000 men a month pouring into the territory, northern and central California grew virtually overnight and became a major supply center for the nearby goldfields. The native people, already weakened by seven decades of Hispanic rule, were pushed into the foothills, forced into involuntary labor, and denied any land rights. While the immediate effects of the gold rush were less pronounced in the southern California area, eventually with California statehood and conflicts between state and federal control, the native people were further marginalized in all areas of the state.

4.5.2 HISTORIC RESOURCES

After sporadic exploratory expeditions by the Spanish beginning in the early 1500s, the more permanent settlements initiated by Europeans in 1769 is considered to be the inception of the Historic Period in California's history. With the advent of permanent settlements came a number of major changes in the cultural evolution of California. First, the settlements led to the breakdown of indigenous cultures and their eventual missionization, which was also exacerbated by the increasing geographic scale that the European settlers began to use and change. This, in turn, led to the rise in urbanization and increasing agricultural focus of the state up to the present day. Multiple phases of political control shaped California's history during this period. These

phases (the Spanish, Mexican, and American) provide a record of occupation and land use. Each of these occupational periods represents a presence, chronological significance, and historical relationship of cultural resources within the project area. Acquiring new information on these phases with respect to the methods used in archaeology is a new field. A more detailed characterization of the phase and potential resources related to that phase is an important aspect of reducing impacts to cultural resources and allows for a more rigorous study of these phases of California history.

4.5.3 PALEONTOLOGICAL RESOURCES

Paleontology is a branch of geology that studies prehistoric life forms other than humans, through the study of plant and animal fossils. Paleontological resources are fossilized remains of organisms that lived in the region in the geologic past and therefore preserve an aspect of Southern California prehistory which is important in understanding the development of the region as a whole, as many of these species are now extinct. Like archaeological sites and objects (which pertain to human occupation), paleontological sites and fossils are non-renewable resources. They predominantly are found in sedimentary rock deposits, and are most easily found in regions which may have been uplifted and eroded, but, they may also be found anywhere that subsurface excavation is being carried out. For example, ancient marine fossils have been found in the Santa Monica Mountains, particularly in exposed canyon areas, streambeds, and along roadcuts. They have also been found under the streets of Los Angeles during storm drain and subway construction. Most of the Los Angeles Basin is composed of sedimentary deposits.

The following types of paleontological resources are known to exist in the project area:

- True Fossils: Lithified or replaced remains of plants and animals preserved in a rock matrix (e.g., microfossils, shells, animal bones and skeletons, and whole tree trunks);

- Trace Fossils: Molds, casts, tracks, trails and burrow impressions made in soft clays and muds which subsequently were turned to stone, preserving the images of past life (e.g., shells, footprints, leaf prints, and worm tubes);

- Breas: Seeps of natural petroleum that trapped extinct animals and preserved and fossilized their remains.

Both marine and land vertebrate and invertebrate fossils are found in the project area. In California, vertebrate fossils (fossils from animals that have skeletons) are found in rocks that date from 300 million years old to 13,500 years old, yet they are still considered rare if found. This is because they are found less frequently and in a less complete condition than invertebrate and plant fossils (Bedrossian 1975).

FOSSILS AND THEIR ASSOCIATED FORMATIONS

Geologic formations are the matrix in which most fossils are found, occasionally in buried paleosols (ancient soils). These formations are totally different from modern soils and cannot be correlated with soil maps that depict modern surface soils representing only a thin veneer on the surface of the earth. Geologic formations may range in thickness from a few feet to hundreds of thousands of feet, and form complex relationships below the surface. Geologic maps (available through the U.S. Geological Survey [USGS] or California Division of Mines and Geology [CDMG]) show the surface expression (in two dimensions) of geologic formations along with other geologic features such as faults, folds, and landslides. Although sedimentary formations were initially deposited one atop the other, much like a layer cake, over time the layers have been squeezed, tilted, folded, cut by faults and vertically and horizontally displaced, so that today, any one rock unit does not usually extend in a simple horizontal layer. If a sensitive formation bearing fossils can be found at the surface in an outcrop, chances are that same formation may extend not only many feet into the ground straight down, it may well extend for miles just below the surface. This makes the task of predicting which areas are paleontologically sensitive difficult.

A majority of the project area are rich with fossil bearing sedimentary formations. All regions have crystalline basement rocks (metamorphic & plutonic) overlain by sedimentary and volcanic rocks. There are at least 23 different formations in Orange County alone, most of which are sedimentary and fossiliferous.

4.5.4 RESEARCH METHODS AND GENERAL RESULTS

DETERMINING ARCHAEOLOGICAL AND HISTORICAL POTENTIAL

Depending on the locational circumstances of subsequent activities, various types of prehistoric archaeological or historical resources could be affected. For example, the potential for the presence of prehistoric subsurface (archaeological) resources increases with proximity to ancient stream courses, springs, or coastal or lacustrine shorelines. Prehistoric Californians frequently established their principal settlements in such circumstances to insure adequate sources of food and water. Through time, their extended and recurrent stays in these locations resulted in the accumulation of living debris and the creation of subsurface deposits or middens. These deposits could be encountered if excavation is required to install, construct or maintain the proposed telecommunications infrastructure and appurtenant facilities. For historical resources, within already urbanized areas, and depending on the age of the historic settlement in the area, subsurface historical features may be present beneath city streets or buildings. These features could be encountered if excavation is required to install, construct, or maintain the proposed cable lines and appurtenant facilities. In older cities such as San Diego, Los Angeles, or San Francisco, where settlement extends from Spanish times through the Mexican period and into the present, the potential for such subsurface historical features increases. These subsurface historical features could include remnant houses, buildings, or other structural foundations; abandoned infrastructure elements such as roadways, rail lines, or culverts, or deposits consisting of trash. As with the prehistoric subsurface sites, these features could be encountered if excavation is required to install

or construct the proposed facilities. Historical resources can also consist of standing buildings or structures. These buildings or structures can be present either in existing urban or in rural settings. Alteration of such buildings or structures, if required, could be impactive to these resources.

With the various fiber optic cable facility installation methods proposed (i.e., on existing transmission towers or within existing gas lines underground) for placement of the fiber optic cable facilities, the potential for impacts to archaeological and historical resources, while diminished, could still occur if earth moving activities or existing building alterations are required. Consequently, record searches at regional information centers and in some cases, field surveys would be necessary to determine if archaeological and/or historical resources may be present in areas where project activities are to occur.

DETERMINING PALEONTOLOGICAL POTENTIAL

The most general paleontological information can be obtained from geologic maps, but geologic cross sections (slices of the layer cake to view the third dimension) must be reviewed for each area in question. These usually accompany geologic maps or technical reports. Once it can be determined which formations may be present in the subsurface, the question of paleontological resources must be addressed. Even though a formation is known to contain fossils, they are not usually distributed uniformly throughout the many square miles the formation may cover. If the fossils were part of a bay environment when they died, perhaps a scattered layer of shells will be preserved over large areas. If on the other hand, a whale died in this bay, you might expect to find fossil whale bone only in one small area of less than a few hundred square feet. Other resources to be considered in the determination of paleontologic potential are regional geologic reports, site records on file with paleontological repositories and site specific field surveys.

Location and Significance of Major Finds in the Project Area

There are many fossil localities recorded in the project area. Paleontologists consider all vertebrate fossils to be of significance. Fossils of other types are considered significant as well if they represent a new record, new species, an oldest occurring species, the most complete specimen of its kind, a rare species worldwide, or a species helpful in the dating of formations. However, even a previously designated low potential site may yield significant fossils.

4.5.5 REGULATORY SETTING

Cultural resources in the project area include archaeological sites of prehistoric or historic origin, fossil deposits of paleontological importance, and standing structures with national, state, or local significance. These resources are regulated at the federal, state and local levels as discussed below.

FEDERAL

Federal regulations and policies pertain to those actions that involve federal funding, federal licensing, federal permitting, or that may be constructed on federal land. Examples may include federal grants or licensing (Federal Energy Regulatory Commission [FERC] and the Interstate Commerce Commission [ICC]) and federal permits associated with vegetation and wetlands (US Army Corps of Engineers [Corps] Section 404 permits), or construction within a military base.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1970 mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA's policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. Subsequent activities are to be evaluated according to their significance in affecting the quality of the environment. NEPA addresses a wide range of environmental issues including the documentation of, and potential impacts to, cultural and historic properties. Compliance includes an on-site survey by a qualified archaeologist prior to construction. A report of findings may be submitted to the State Historic Preservation Office (SHPO) for further consultation.

National Historic Preservation Act

Most regulations at the federal level stem from NEPA and historic preservation legislation such as the National Historic Preservation Act (NHPA) of 1966. NHPA established laws for historic resources to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." Historic preservation legislation was initiated by the Antiquities Act of 1966, which aimed to protect important historic and archaeological sites. It established a system of permits for conducting archaeological studies on federal land, as well as setting penalties for noncompliance. This permit process controls the disturbance which may be caused to archaeological sites. New permits are currently issued under the Archeological Resources Protection Act (ARPA) of 1979. The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands. The Historic Sites Act of 1935 declared that it is national policy to "Preserve for public use historic sites, buildings, and objects of national significance." The NHPA expanded the scope to include important state and local resources. Provisions of NHPA establish the NRHP maintained by the National Park Service, advisory councils on historic preservation, state historic preservation offices, and grants-in-aid programs. Section 106 of the NHPA requires all federal agencies to consult the Advisory Council before continuing any activity affecting a property listed on or eligible for listing on the National Register. The Advisory Council has developed regulations for Section 106, to encourage coordination of agency cultural resource compliance requirements under Executive Order 11593 and NEPA with those of Section 106.

Section 106 Review

Section 106 of the NHPA requires a federal agency with jurisdiction over a federally funded, federally assisted, or federally licensed undertaking to take into account the effects of the agency's undertaking on properties listed or eligible for listing in the NRHP (16 USC 470 et seq.). For example. if subsequent activities require a permit from the Corps, it would be necessary for the activity to comply with Section 106 of the NHPA.

For compliance with Section 106 of the NHPA, the lead federal agency is required to consult with the SHPO before granting permits, funding, or other authorization of the undertaking. The Section 106 review process is implemented using a 5-step procedure:

- identification and evaluation of historic properties,
- assessment of the effects of the undertaking on properties that are eligible for listing in the NRHP,
- consultation with the SHPO and other agencies for the development of an agreement that addresses the treatment of historic properties,
- receipt of Advisory Council on Historic Preservation comments on the agreement or results of consultation, and
- implementation of subsequent activities according to the conditions of the agreement.

To determine whether the subsequent activities could affect NRHP-eligible properties, cultural sites (including archaeological, historical, and architectural properties) must be inventoried and evaluated for eligibility for listing in the NRHP. Although compliance with Section 106 is the responsibility of the federal lead agency, the work necessary to fulfill compliance can be delegated to others. If no properties determined to be eligible for listing in the NRHP would be affected by the these actions , the federal lead need not consult with the SHPO. However, if the activities have the potential to result in an effect, the SHPO review will likely be completed within 30 days from receipt of the inventory documentation.

For subsequent activities, the Section 106 process may apply if there is a later requirement resulting in a federal action. In this event, the Area of Potential Effect designated for subsequent activities that would likely include cultural resources, such as features in the built environment, that could be indirectly or directly affected by elements related to telecommunications infrastructure development—such as above and below ground conduit installation, OP-AMP / regenerator stations, access roads, and the use of staging areas.

The National Register Section 36 CFR 800.5(a)(1) criteria for adverse affect is as follows:

- An undertaking has an adverse affect when it may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National

Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

- Examples of adverse affects, as listed in Section 36 CFR 800.5(a)(2), are as follows: physical destruction of or damage to all or part of the property;
- alteration, isolation, removal of the property, or change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- introduction of visual, audible, or atmospheric elements that diminish the integrity of the property's significant historic properties;
- neglect of a property which causes its deterioration, unless such deterioration is consistent with cultural values;
- transfer, lease, or sale of property out of Federal ownership.

STATE

With the CPUC as the lead agency, California policies and regulations are the primary source of regulations and guidelines.

California Environmental Quality Act

Certain portions of the California legal code are specifically concerned with the protection of cultural resources and archaeological human remains located on public or private land. The basic policy statements at the State level on which cultural resource protective regulations are based are contained in CEQA (adopted in 1970, revised in 1998), the California Coastal Act of 1976, the Coastal Commission Archaeological Guidelines, State Office of Historic Preservation Guidelines for cultural resource surveys and data recovery programs, and Native American Heritage Commission guidelines for cultural resources identification and protection. CEQA Appendix K formerly addressed significance and mitigation of archaeological sites, but was inadequate and outdated. Appendix K was eliminated in 1998 and the significant guidance it contained was placed into new sections 15064.5 and 15126.4 in the main body of CEQA. The new Appendix G has been enhanced and revised to help determine significance with an easy to use checklist. Most importantly, human remains of an archaeological nature are protected under Section 15064.5-e of CEQA and State Health and Safety Code Section 7050.5.

Cultural resources are defined within the context of CEQA to be buildings, sites, structures, or objects that are historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California. A substantial adverse change to the significance of a historical resource constitutes a significant effect on the environment. A "substantial adverse change" means "demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired" (Section 15064.5). All properties on the California Register, or that meet the standards

of the Register, that may be affected by development or zoning actions must be considered under CEQA. The fact that a resource or property is not listed on the California Register does not preclude it from being significant and does not make it exempt from CEQA evaluation. Examples may include locally designated properties and properties evaluated as significant in cultural resource surveys that meet CRHR criteria and State Office of Historic Preservation (SOHP) standards (the current surveys meet such criteria). Native American sites and areas of cultural sensitivity or sacred value may also be found to be significant in spite of not being formally listed. This may include resources or places where the cultural value is unique to the Native American community and to the non-Indian community as a whole. The discovery of human remains comes under state regulation and county jurisdiction through the oversight of the California Native American Heritage Commission.

In order to adequately address the level of potential impacts, and thereby design appropriate mitigation measures, the significance and nature of the cultural resources must be determined. The following are steps typically taken to assess and mitigate potential impacts to cultural resources for the purposes of CEQA:

- Identify both previously recorded cultural resources and those not previously recorded.
- Evaluate the significance of cultural resources using CEQA guidelines.
- Identify the significance of impacts under CEQA of the proposed project within the APE.
- Develop and implement mitigation measures designed to avoid, minimize, rectify, or reduce or eliminate the effects of the project on significant cultural resources.

Other Provisions of Public Resources Code

The State's cultural resources are regulated by the Public Resources Code (PRC). The PRC defines cultural preserves as "distinct areas of outstanding cultural interest" located in the State Park System for the protection of sites, buildings, or zones, which represent significant places or events in the flow of human experience in California. An historic resource includes, but is not limited to, "any object, building or structure, site, area, or place which is historically or archaeologically significant," or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Section 5097.5 of the PRC specifically defines "unauthorized excavation, removal, destruction, etc., of archaeological, paleontological or historical feature, on "Public Lands," as a misdemeanor. The California Administrative Code includes the following laws, Title 14, State Division of Beaches and Parks, Section 4307: Archaeological Features: No person shall remove, injure, disfigure, deface, or destroy any object of paleontological, archaeological or historical interest or value. The California Penal Code, Title 14, part 1, Section 622 1/2 provides that injury, etc. to an object of archaeological or historical interest is punishable as a misdemeanor.

State Office of Historic Preservation

SOHP implements preservation laws regarding historic resources, and is responsible for the Historic Resources Inventory (HRI), which uses the NRHP criteria for listing resources significant at the national, state, and local level.

Native American Heritage Commission

Section 50907.9 of the PRC and Section 7050 of the Health and Safety Code empower the Native American Heritage Commission to regulate Native American concerns toward the excavation and disposition of Native American cultural resources. Among its duties, the Commission is authorized to resolve disputes relating to the treatment and disposition of Native American human remains and items associated with burials. Upon notification of the discovery of human remains by a county coroner, the Commission notifies the Native American group or individual most likely descended from the deceased.

State Historical Building Code

In California, the State Historical Building Code (SHBC) provides some degree of flexibility to owners of historic structures towards meeting building code requirements. The SHBC standards and regulations are performance-oriented rather than prescriptive unlike most housing codes which are more prescriptive. Jurisdictions must use the SHBC when dealing with qualified historical buildings, structures, sites, or resources in permitting repairs, alterations and additions necessary for the preservation, rehabilitation, relocation, related reconstruction, change of use, or continued use of a historic property. The State Historical Building Safety Board has adopted the following definition for a qualified historical house or resource:

> A qualified historical building or structure is any structure, collection of structures, and their associates sites, deemed of importance to the history, architecture or culture of an area by an appropriate local, state, or Federal governmental jurisdiction. This should include designated structures declared eligible or listed on official national, state, or local historic registers or official inventories such as the National Register of Historic Places, State Historic Landmarks, State Points of Historical Interest, and officially adopted city or county registers or inventories of historical or architecturally significant sites, places, or landmarks.

Under the provisions of the SHBC, new construction or modifications, such as placing a generating station or other fiber optic facility in a historic building must conform to prevailing codes, although the elements of the existing structure are given the flexibility of reasonable and sensitive alternatives. The alternative building standards and regulations encompassed by the SHBC are intended to facilitate the renovation in a manner that assists in the preservation of original or restored architectural elements and features, encourages energy conservation, provides a cost-effective approach to preservation, and ensures the safety of occupants.

LOCAL REGULATORY FRAMEWORK

In addition to federal and state regulations, cities and counties may also provide regulatory protection and advisement regarding cultural resources. For instance, many cities and counties fund agencies designated to identify and protect resources. Some afford local ordinances that identify goals and standards for maintenance and protection of such resources. An example is the City of Los Angles, which established a Cultural Heritage Commission that maintains an ongoing listing of historic-cultural monuments within the city. In 1987, the Orange County Board of Supervisors established policy and procedures for cultural resource management in unincorporated portions of the county. Some local general plans provide conservation elements or other elements directly related to cultural resources located within their jurisdiction. In addition, many cities have locally designated historic districts and structures that may not be necessarily registered in the California Register of Historic Resources. Further, local definitions of historic significance or assessment rules may differ from that of CEQA or within the NHPA; therefore, local regulations need to be addressed on a specific project-level basis.

4.5.6 IMPACTS AND MITIGATION MEASURES

APPROACH TO ANALYSIS

The following analysis identifies potential impacts on cultural resources that could occur as a result of subsequent activities and describes mitigation measures that would reduce or eliminate potential impacts. The cultural resources inventory for the project area has not been completed; therefore, mitigation for cultural resources includes completion of the cultural resources inventory for proposed activities and the selection of methods to avoid impacts on potentially significant cultural resources in compliance with the CEQA Guidelines.

CRITERIA FOR DETERMINING SIGNIFICANCE

The primary criteria for determining the significance of impacts to cultural resources are related to the significance of the resources themselves, as provided in PRC 5024.1, Title 14 CCR, Section 4850 et seq., referenced in CEQA Guidelines (Sec. 15064.5), and the severity of the impact in diminishing or destroying the given resource. While the General Plans for the various counties and cities and California Coastal Act also address criteria for impact significance, these plans and guidelines necessarily reflect CEQA and efforts to preserve and protect California Historic Landmarks and those properties listed or deemed eligible for inclusion on the CRHR, established under PRC 5024.1.

Pursuant to Section 15064.5 of the CEQA Guidelines, significant impacts could occur to cultural resources identified as an historical resource. Identification of historical resources is a prerequisite to determining impacts resulting from subsequent activities. The CRHR is to be used to identify the State's historical resources and to indicate what properties are to be protected from adverse impacts. A site is eligible for the CRHR if it meets one of several criteria patterned after the NRHP (36 CFR 60.4) and CEQA. Thus a subsequent activity would also be considered to

have a significant effect if it would adversely effect a resource that is listed or had been determined eligible for the CRHR. Criteria for listing on the CRHR (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) include the following:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

Specifically, impacts would be deemed to be significant if there is substantial adverse change by means of physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Per Section 15064.5 (b)(2) of the CEQA Guidelines the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for the purposes of CEQA.
- Cultural resources not found to be eligible for CRHR usually do not require further management consideration. If resources are considered historical resources per CEQA (e.g. eligible for the CRHR) than ground disturbing or other construction related activities could remove or destroy cultural deposits or those characteristics of the resource which may it eligible for the CRHR. Resource altering disturbances could result in the loss of integrity of historical resources, the loss of information, and the alteration of site setting which could be a significant impact.

IMPACT MECHANISMS

It is assumed that the greatest impact to cultural resources, and more specifically archaeological resources on the ground, would occur as a result of construction related activities either from trenching for installation of fiber optic cable facilities, portals excavated for directional boring, grading for access roads, staging areas, stream crossings, or pulling stations, mechanical vegetation removal or other similar types of ground disturbing activities required for installations. Ground-disturbing activities associated with the construction of facilities such as manholes, handholes, and assist points; splice boxes; and regenerator and OP-AMP station foundations pose a point specific and usually angular impact, while those associated with placement of the cable facilities are linear and relatively narrow. A second type of impact could occur from hanging or placing conduits on historical bridges, trestles, or buildings. A third type could occur by the placement of regenerator and/or op-amp station facilities in proximity to historic buildings or features resulting in impacts to the aesthetic and/or context of these resources.

The extent of the particular impact to an archaeological site would depend on the depth and breadth of a given resource and the degree to which the action, e.g., trenching, would intrude into the resource. In the case of historic bridges, trestles, and buildings, the extent of the impact is directly related to the alteration of visual or aesthetic quality of the structure.

Standard routine maintenance would not typically constitute a significant impact. Exceptions might include emergency repairs that required mechanical excavation in sensitive areas, particularly areas that have not been previously disturbed.

MITIGATION APPROACH

As the foregoing discussion indicated, detailed information pertaining to subsequent activities must be established before adequate mitigations may be assigned to address specific cultural resource issues for the proposed activity. Because the degree and breath of specific impacts to cultural resources cannot be addressed until specific activities are determined, the following suite of mitigations are designed to provide a programmatic mitigation approach for possible scenarios on a general scale.

Prior to approval of subsequent activities by the CPUC, Sempra Communications will conduct a cultural resources records and literature search review to ascertain whether cultural resources are present within the vicinity of the proposed activity and/or facilities locations as indicated in further detail in Appendix A and B. This report shall include an evaluation of the nature of any resources and their location relative to the proposed facility elements and associated construction activities. A report of the results of this study shall be prepared by Sempra Communications and submitted to the CPUC for review as part of their work plan. Based on the results of this evaluation, mitigation measures developed and adopted in this Program EIR will be applied as appropriate for the identified resources. Resource avoidance will be the primary mitigation measure. If constraints do not allow for avoidance, then any unavoidable resource, would need to be evaluated for significance prior to proposed construction. Based on the results of this

significance evaluation, mitigation measures will be applied as appropriate for the resource(s). These measures have been developed in this Program EIR that range from none, if it is determined that the resource is not significant, to data recovery and/or monitoring if the resource is considered to be significant.

If requirements should change for subsequent activities after the submittal and approval of the of the above described required cultural resources document (e.g., an access road is needed that was not originally foreseen) and work plan, then a supplemental document to the original approved work plan shall be prepared that contains the results of the additional required research and proposed mitigation measures for the new element(s).

Some circumstances, including proposed activity locations within built environments such as downtown and urban areas where ground surfaces are currently occluded by pavement and/or landscaping, may preclude field survey or resource evaluation/testing. Under such circumstances, construction monitoring by qualified archaeological monitors may be substituted for survey, evaluation/testing, or data recovery. These circumstances will need to be documented in the cultural resources review document.

Impact CUL-1: Possible adverse changes to the significance of historical resources (applies specifically to historic buildings that may be affected by placing connections into historic structures thus altering their physical and aesthetic qualities or a change in their context/setting). (Potentially Significant)

Mitigation Measure CUL-1a: Avoid historical building sites for installation of cable connections, prohibit structural or architectural modifications that would alter the architectural or aesthetic qualities of the building or design additions or modifications in such a manner as to be consistent with the architectural style.

Sempra Communications would not modify existing buildings designated as historic structures or buildings over 45 years of age that have potential to be historic structures. Typically, these buildings are clustered in the older sections of urban areas and within railroad right-of-ways (train depots and manufacturing plants). If it is unavoidable that a historic structure is proposed for use, the potential impact would be evaluated and measures applied to mitigate the impacts. Measures would include prohibiting structural or architectural modifications that would alter the architectural or aesthetic qualities of the building or designing additions or modifications in such a manner as to be consistent with the architectural style.

Significance after Mitigation: Less than significant.

Impact CUL-2: Possible substantial effects can occur to known, but unevaluated prehistoric and historic archaeological deposits from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas). (Potentially Significant)

Trenching and other subsurface excavation in the areas known to contain archaeological sites, or suspected to have such sites, would disturb or destroy significant cultural resources. Cultural resource sites known to exist within power line, railroad or other right-of-ways, that have not been previously tested for significance, and that cannot be avoided, should be tested for their distribution, integrity, and significance, prior to construction. Pre-construction testing is preferable to monitoring for these sites given their potential to be important resources. Native American concerns that construction could affect sacred sites or burials, and the possibility that some form of mitigation requiring data recovery excavation could be required if significant resources are encountered and could not be avoided. Because data recovery can be time consuming and impede construction if it is left until construction is underway, testing to determine the need, if any, for such recovery should be performed as early as possible in the planning stages but after a 75-80% engineering threshold is met.

For sites of concern identified in the proposed work plan proposed by Sempra Communications, particularly in existing right-of-ways or under paved urban roads, construction monitoring by a Native American and qualified archaeologist, followed by either avoidance of resources encountered during monitoring or scientific excavation and analysis of recovered materials in the sensitive areas could serve to mitigate the impacts. Without monitoring and avoidance/excavation, if warranted, construction trenching and subsurface excavation could cause less than significant impacts to resources determined to not be significant resources and could cause significant impact to resources determined to be cultural or scientifically significant or eligible for nomination to the CHL.

Mitigation Measure CUL-2a: Conduct pre-construction archaeological testing (or perform construction monitoring by a Native American and qualified archaeologist in built environments where ground surfaces are currently occluded by pavement and/or landscaping, and therefore may preclude field survey or resource evaluation/testing).

Sempra Communications would conduct pre-construction archaeological testing sites of concern in locations identified in the work plan if avoidance is infeasible. If the sites are determined to not be significant or eligible for nomination to the CHL, no further pre-construction testing or evaluation would be required. Monitoring would be conducted in the area of the site during construction and application of the measures stipulated in the Cultural Resources Procedures (Appendix F) to include avoidance if feasible, or scientific data recovery and analysis if avoidance is not feasible. Where necessary, Sempra Communications would seek Native American input and consultation.

Significance after Mitigation: Less than significant.

Impact CUL-3: Possible substantial effects to potential, poorly recorded, or possibly badly disturbed prehistoric and historic archaeological deposits from ground disturbing

construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas). (Potentially Significant)

Mitigation Measure CUL-3a: Conduct archaeological monitoring.

Sempra Communications would conduct archaeological monitoring during construction in areas that have been identified and verified by the CPUC in the work plan as archaeologically sensitive. If resources are encountered, they would be tested and evaluated for their significance and eligibility for nomination to the CHL. If a resource is determined not significant, no additional mitigation beyond continued monitoring would be required. If the resource is determined to be significant, application of the measures stipulated in the Cultural Resource Procedures would be implemented to include avoidance if feasible, or scientific data recovery and analysis if avoidance is not feasible. Where necessary, Sempra Communications would seek Native American input and consultation, especially with respect to traditional cultural properties that are not normally disseminated through the California Historical Resources Information Centers.

Significance after Mitigation: Less than significant.

Impact CUL-4: Potential location or disturbance of unique paleontological resources during construction. (Potentially Significant)

Installation fiber optic facilities proposed by Sempra Communications may involve shallow excavations in pre-disturbed soils within city streets or in unimproved areas within the project area boundaries. Since significant fossil discoveries are made even in areas designated as low potential, excavation activities could possibly unearth significant paleontological resources throughout the proposed alignments. Should such paleontological resources be located, this would be considered a significant impact.

Mitigation Measure CUL-4a: Conduct paleontological monitoring.

In the event that project construction will take place in a sensitive paleontological setting, construction would be monitored by a qualified paleontologist. If artifacts of paleontological importance such as fossils or animal bones are uncovered during excavation, construction activities will cease, and the site will be surveyed by a qualified paleontologist who would determine the best course of action.

Significance after Mitigation: Less than significant.

Impact CUL-5: Possible substantial effects to human burials from ground disturbing construction operations (construction related impact, particularly open trenches and portals for directional boring within specified sensitive areas). (Potentially Significant)

Trenching and other subsurface excavation in the areas known to contain burials or archaeological sites of the type known to possess burials (occupation sites), or areas suspected to have such sites, could disturb or destroy significant human remains. This could include prehistoric remains or non-Indian pioneers burials. Construction monitoring by a Native American and qualified archaeologist, followed by either avoidance of burials encountered during monitoring or scientific excavation and analysis of recovered materials in the sensitive areas could serve to mitigate the impacts; however Native American groups may perceive impacts from any form of disturbance of human remains. Without monitoring and avoidance/excavation, if warranted, construction trenching and subsurface excavation could cause significant impact to human remains.

Mitigation Measure CUL-5a: Implement Mitigation Measure CUL-3a.

Significance after Mitigation: Less than significant.

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